

# Two New Species of Combretaceae from Puntarenas, Costa Rica

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**ABSTRACT.** Two new species of Combretaceae are described from Costa Rica. *Combretum graciliflorum* is related to *C. cacoucia* Exell and is only the second species of section *Cacoucia* (Aublet) Engler & Diels known in America. *Buchenavia costaricensis* is the second species of the genus from Central America and is evidently not closely related to the other (*B. tetraphylla* (Aublet) R. A. Howard). *Combretum assimile* Eichler is also reported as new to Costa Rica, from the same area as the above two new species (Osa Peninsula, Puntarenas).

Among specimens collected in Costa Rica in 1988–1991 and recently sent to me for naming by the Missouri Botanical Garden are three taxa new to Costa Rica, two of them new to science. The two latter are the first new Central American Combretaceae to be discovered for many years, indicating the need for further detailed studies of the area in question (Osa Peninsula, Puntarenas).

***Combretum graciliflorum* Stace, sp. nov. TYPE:** Costa Rica. Puntarenas: Cantón de Osa/Buenos Aires, W part of main ridge of Fila Retinto, along and near trail from Palmar Norte to Jalisco, 8°59.5'N, 83°28'W, 780–960 m, 9 Dec. 1988, Grayum & Herrera 9131 (holotype, MO).

A speciebus consectionibus floribus extra dense pubescentibus minoribus angustioribusque differt. Pedicelli 3–7 mm; hypanthium inferius (cum ovario) 3–4 mm; hypanthium superius anguste curvato-infundibuliforme 10–17 mm longum (sepalis 2.5–3.5 mm longis inclusis), 3.5–6 mm latum; petala usque ad 3 mm exserta, ca. 7 × 5 mm, late elliptica.

Liana. Minute stalked glands frequent on leaves and inflorescences. Leaves opposite, 3.5–11.5 × 2.5–6 cm, ovate-oblong, abruptly and shortly acuminate at apex, cordate to rounded-cordate at base, with 5–6 pairs of strongly curved lateral veins, densely reddish brown appressed-pubescent on veins, otherwise sparsely pubescent. Petiole 3–6 mm, densely reddish brown appressed-pubescent. Inflorescence a simple, terminal raceme 6–14.5 cm (not fully elongated). Young stems, rachis, bracts, and outside of flowers densely reddish brown appressed-pubescent. Lowest bracts ca. 14 × 5 mm, narrowly

elliptic, decreasing in size acropetally. Flowers (from base of pedicel to tip of petals, excluding stamens and style) 18–28 mm. Pedicel 3–7 mm. Lower hypanthium (including ovary) 3–4 mm. Upper hypanthium (including sepals) 10–17 mm, narrowly curved-infundibuliform, gradually widening from base, 3.5–6 mm across at base of sepals. Sepals 2.5–3.5 × 2–3 mm, triangular, acute at apex. Petals ca. 7 × 5 mm, broadly elliptic, pubescent, subacute at apex, exceeding sepals by up to 3 mm. Stamens exserted (but broken off). Style exserted at least 10 mm when mature.

The label describes the plant as a coarse liana swooping low in forest, with yellowish green petals. However, the petals have dried very dark, and they and the stamens may have been red, as in most members of the same section; the collectors might have been referring to the sepals.

I have seen only one sheet of this species, but it is clearly a member of section *Cacoucia* (Aublet) Engler & Diels (Exell, 1953). This section contains one American species (*C. cacoucia* Exell) and probably four species in West Africa (Fig. 1). *Combretum graciliflorum* is readily separable from *C. cacoucia* because of its much narrower flowers, and comes closer to some of the West African species in flower shape, notably *C. mooreanum* Exell, *C. stenopterum* Exell, and some plants of *C. bracteatum* (M. A. Lawson) Engler & Diels (especially plants formerly segregated as *C. gentilii* De Wildeman). However, it is distinct from all of these in details of flower structure. The flowers of section *Cacoucia* are the largest and most highly developed in the genus, with a long curved upper hypanthium, attaining 4.5 cm long in some plants of *C. bracteatum* (e.g., the type specimen of *C. bucciniflorum* Exell). They are mostly red or orange in color, have long-exserted stamens and style, and are probably bird-pollinated. The flowers of the new *C. graciliflorum* are the smallest in the section.

The fruits of the West African species of the genus are 5-winged, the wings being wide and thin in *C. bracteatum* (including *C. gentilii* and *C. bucciniflorum*) and *C. platypterum* (Welwitsch) Hutchinson & Dalziel, and very narrow and corky in *C. stenopterum* and *C. mooreanum*. In contrast, the





Figure 1. Distribution of *Combretum* sect. *Cacoucia*. African range covers four species; it coincides closely with the original area of tropical rainforest. American range covers *C. cacoucia* and (●) *C. graciliflorum* sp. nov. Continents are drawn to the same scale and correct relative latitudes.

fruits of *C. cacoucia* are larger (5–8 × 1.7–3 cm) and unwinged, with five strong longitudinal ridges. It is thus very desirable that fruiting material of *C. graciliflorum* be discovered. If it is a riverine species, like the three last-mentioned, then it too probably has ridged or very narrowly winged fruits.

***Buchenavia costaricensis* Stace, sp. nov. TYPE:**  
Costa Rica. Puntarenas: Reserva Forestal Golfo Dulce Aguabuena, Sector Cuenca Oeste, 8°42'2"N, 83°31'30"W, 50–150 m, 28 Sep. 1991, *Aguilar 502* (holotype, MO; isotypes, CR, LTR).

Ab aliis speciebus petiolis longis (1.3–3.5 cm longi) gracilibus (laminae saepe solum duplo longae), inflorescentiae elongato-spicatae, fructibus glabris (apice subacuto ad rotundato), hypanthiis superis extus glabris, foliis maturis glabris, hypanthiis inferis rhachidibusque sparse pubescentibus differt.

Tree to 35 m, with long, thin, straight buttresses. Leaves spirally arranged, crowded on branchlet tips; lamina 2.5–13 × 1.5–5 cm, obovate or narrowly so, with obtuse or rounded apex, with acute decurrent base, with pubescent prominent midrib and lateral veins on lower surface at flowering, otherwise glabrous; petiole 1.3–3.5 cm, slender, eglandular. Inflorescence an elongated spike; peduncle and rachis 6–12 cm, slender, sparsely pubescent at flow-

ering. Flowers 4–5 mm from base of ovary to tip of calyx, yellowish green; lower hypanthium 2.5–3 mm, slender, puberulous in lower ovary-bearing part, glabrous in upper part; upper hypanthium 1.5–2 × 4–5 mm, glabrous on outside, pubescent on inside, ± entire at margin; stamens 10, exserted up to 1.5 mm; style exserted up to 1.5(–2) mm. Fruit 2–3 × 1.2–1.9 cm, ellipsoid or obovoid, subacute to rounded at apex, yellowish green when ripe, glabrous; endocarp irregularly but strongly longitudinally furrowed, slightly compressed.

The holotype is a tree 20 m × 40 cm DBH in fruit.

*Buchenavia costaricensis* is recognizable on the basis of its leaves with long thin petioles (many about half as long as the lamina); glabrous fruits with obtuse to rounded apex; glabrous upper hypanthia and mature leaves; and leaves at flowering time, inflorescence axis, and lower hypanthium only sparsely pubescent. The leaf shape, texture, and venation is also quite characteristic.

This is only the second species of *Buchenavia* to be found outside mainland South America (Exell & Stace, 1963). *Buchenavia tetraphylla* (Aublet) R. A. Howard (*B. capitata* (Vahl) Eichler) occurs in the West Indies (Cuba to Trinidad) and in Costa Rica and Panama, as well as widely throughout South America, where a further 20 species occur



(Fig. 2). *Buchenavia tetraphylla* is distinct from *B. costaricensis* in its thicker shorter petiole (0.4–1.5(–2) cm) and capitate inflorescence.

**Paratypes.** COSTA RICA. **Puntarenas:** Cantón de Osa, Playa Campanario o San Josesito, Sierpe, primary forest, 8°39'39"N, 83°42'50"W, 1–10 m, 5 Jan. 1991 (fl), *Harmon 192* (CR, LTR, MO); Cantón de Golfito Jiménez, Alto de la Carbonera, camino a Cerro de Osa, 8°25'30"N, 83°19'00"W, 200–350 m, 18 Sep. 1990 (fr), *Chacón 1046* (CR, LTR); primary forest, Parque Nac. Manuel Antonio, 9°23'N, 84°09'W, 1–10 m, 11 Apr. 1990 (fr), *Harmon 95* (CR, LTR); Cantón de Golfito La Palma, en pequeñas áreas de bosque alrededor del pueblo, 8°38'30"N, 83°23'00"W, 50 m, 14 Sep. 1992 (fr), *Aguilar 1302* (CR, LTR).

The following two specimens have been brought to my attention by Barry Hammel. COSTA RICA. **Puntarenas:** Parque Nac. Manuel Antonio, woods near ANEP road, Punta Catedral, Puerto Escondido, and Lotz Road, 9°04'N, 84°10'W, 1–100 m, 3 Jan. 1990 (in bud), *Harmon 40* (CR not seen); Cantón de Osa, Rincón de Osa, entrada a Chocuaco, 8°43'52"N, 83°27'15"W, 100–200 m, 27 Aug. 1992 (fr), *Zamora, Aguilar, Ramírez & Martín 1864* (CR not seen).

#### COMBRETUM ASSIMILE EICHLER

*Combretum assimile* is a member of section *Combretum*, represented mainly by *C. fruticosum* (Loefling) Stuntz and *C. farinosum* Kunth in Central America (including Costa Rica). *Combretum assimile* differs from these two species in its larger flowers and fruits and in its dark red scales on the flowers, fruits, inflorescence axis, leaves, and young stems (golden in *C. fruticosum*, gray in *C. farinosum*). It is primarily a plant of the Amazon basin, especially on the Peru–Brazil border. *Combretum sambuense* Pittier was described from the old Panama Canal Zone, and there are also records from Colombia and Venezuela (Exell, 1953), but in my opinion that species should be included in *C. assimile*. The following collection therefore extends the known distribution of *C. assimile* westward into Costa Rica: COSTA RICA. **Puntarenas:** Reserva Forestal Golfo Dulce Aguabuena, Sector Sur, 8°42'20"N,



Figure 2. Distribution of *Buchenavia*. Continuous line: *B. tetraphylla*. ●: *B. costaricensis*. Broken line: 20 other species.

83°31'30"W, 50–150 m, 26 Dec. 1991, *Aguilar & Herrera 793* (LTR, MO).

*Combretum fruticosum* occurs in the same area, but the southern limit of *C. farinosum* is in northern Costa Rica.

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